Market Nursery Work Series

VOL. VI.

DECORATIVE PLANTS, TREES AND SHRUBS

F. J. FLETCHER, F.R.H.S.

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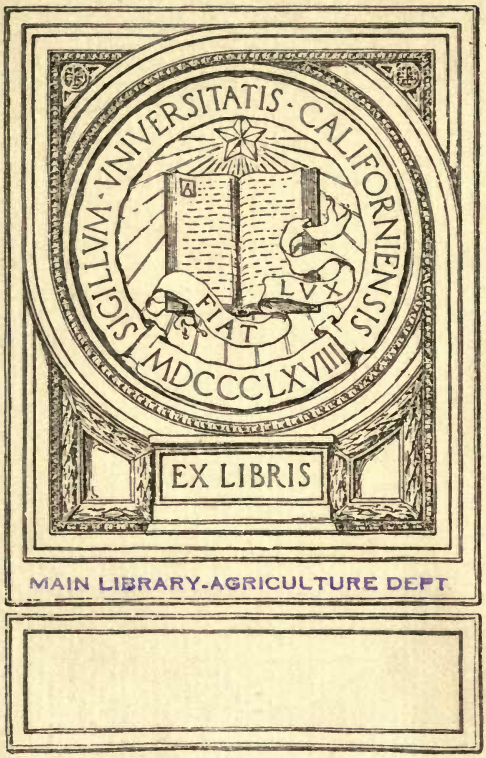

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BY

F. J. FLETCHER, F.R.H.S.

VOLUME VI

DECORATIVE PLANTS, TREES AND SHRUBS

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MARKET NURSERY WORK

VOL. VI

DECORATIVE PLANTS, TREES AND SHRUBS

CHAPTER I

THE HARD-WOODED DEPARTMENT

WITH the strongest possible desire to render this, our final volume, as little like to a catalogue as possible, we shall have to refer to such a large number of plants, shrubs and trees, in varying classes, as to make the fulfilment of that desire, to say the least, difficult.

The subject matter of the following pages is not in any sense a mere gathering together of fragments, but deals, as a whole, with departmental subjects of primary importance to any general nursery, and it is only as a matter of convenience that we are classing them together under the cognomen " Decorative " or " Ornamental." By far the most important of these are those shrubs and trees which are so generally used in the furnishing and decoration of outside grounds and gardens and for which there is an increasing and constant demand. We feel, too, that this department has been somewhat neglected by the writers of manuals, who have more often dealt much fuller with indoor " decorative " pot plants than with outdoor and more permanent subjects, presumably because they appealed most.

As a fair test of the great part ornamental trees and shrubs play in the business of a nurseryman, we would invite any interested enquirer to pay a visit to some well-appointed nursery and note for himself the amount of space allotted to them and the care taken of them. Rule out all forest and fruit trees and roses, you shall find that practically everything else would come into this class.

Their earlier cultivation belongs to what is known as the " hard-wooded " department, with its own staff, its own houses, pits, frames and lights, inferior neither in personnel or equipment to the " soft-wooded " department which claims all greenhouse plants for its own. But the propagation of hard-wooded plants, shrubs and trees is exacting work, calling for a high standard of skill, obedient to the same principles, but following different methods to those relating to the soft-wooded department. We think we should be justified in claiming that the mentality of the two propagators must differ, that is if we can trust to the close observation of many years, and that he who takes in charge the department we are now dealing with has to be capable of exercising unlimited patience and of never-ending watchfulness.

FIG. 1
Philadelphus burfordensis

The stock propagated and cultivated is destined to become parts of the permanent features of the garden or grounds and not subjected to constant changing. The merest tyro can appreciate the importance thus imparted to it, for it will make or mar the prospect. Its functions are to create the " grand effects " of light and shade, of brightness or soberness, of spring-time tints and autumn glories, and to make " the stately homes of England " more homely, covering their nakedness, surrounding them with beauty, grace and warmth, and leaving them something more than chastely cold architectural piles. Further, it is called upon to furnish the appropriate background and setting without which the gaudiest and the prettiest " summer " effects would be bare and staring. So much for its uses and value. Because of this, it is being more generally recog-

nised and used, and the nurseryman finds that he must not only devote considerable areas to its accommodation but must so lay out his grounds that he may display it to the best advantage.

Durability of Trees

We have already hinted that the propagation and cultivation of this class of stock is slow compared with the more rapid methods usual in the other glass-house department, and perhaps for that reason it does not attract so many young workers. It is natural to youth to be impatient, to love quick results, to hanker for change ; we would be the last to find fault with it. That is why we suggested that the different callings required different mentalities, for whole generations of ordinary soft-wooded plants are produced, grown, flourish and depart while their hardwooded companions are yet struggling through their initial stages. It is in the scheme of nature that durable things shall develop slowly, and while a mushroom shall grow up in a single night and perish in a day, an oak, with a prospective thousand years before it, shall be but a slip after five years.

When we stand in admiration before some stately and magnificent conifer—a Wellingtonia perhaps towering 100 feet, or a spreading cedar—it does not always occur to us that at one time those majestic trees were mere cuttings under a light or seedlings in a pan—they have got so far beyond it that the thought savours almost of the ludicrous. When we see the shapely and massive proportions of a good purple beech, or the myriad-armed pendula of a weeping ash covering nearly a rood of ground, we scarcely think of them as mere slips grafted on to a bare thin stem ; yet, such were their beginnings, and it is a fascinating occupation to go back and trace them along, stage by stage, to their present proportions.

And after all is said and done, if we might, for a moment, be permitted to philosophize, is there not a tremendous satisfaction in standing before this spreading cedar or this dense and shapely beech and reflecting that in our younger days ours were the hands that sowed the seed or grafted the stocks, ours the care that nursed them through babyhood, producing in due time the result before us now, until we look upon them in their fullest strength and beauty as " a thing of beauty and a joy for ever ? "

It is not possible for the same sentiment to attach to anything else, especially if it be of an evanescent and fugitive character. The making of a tree which is to gladden our children's children long after the hands that built it are folded to rest is a huge privilege and brings its own reward. To see it reach goodly proportions is such a satisfaction and is a payment in kind that neither capitalist nor trade unionist can either swell or abate. And here is the great difference—the dividing line between the soft-wooded and hard-wooded departments: the one works for to-day and the almost immediate future, the other for the near as well as the distant future. Let neither one underrate the other, for they are the complement of each other.

The Staff

We will take another look at our staff. It is so organised that the propagator who is at, or near, the head of it is virtually an indoor man. He has his propagating house, and if, as is generally the case, he does roses, he keeps it full throughout the greater part of the year. He has many cuttings to strike requiring heat; he has many kinds of shrubs to graft, especially of variegated forms, and for these he must be well equipped indoors. He has ranges of pits in which to bring on his plants after grafting and his cuttings when rooted; he has frames and box-lights in which to put in cuttings of half-ripened wood later, and he has also his rood or two of "cutting ground" in which, still later, he strikes many kinds of cuttings which do not need the protection of glass.

Among the many subjects he has to graft are cypresses, yews, thujas; hollies, ivies, clematis; ligustrums, wistarias, magnolias and others. In the same pit he strikes young wood of roses, clematis, ampelopsis, deutzias, golden privet, solanum jasminoides and perhaps a score of others. The grafts when "taken" and the cuttings when potted off are transferred to the pits and other things take their place.

In the box-lights, as per Fig. 2, a general collection of evergreen and deciduous cuttings are struck, these being made and inserted after the middle of July. They have to stand a whole year, when they are ready for planting out as soon as favourable weather comes.

The open-ground cuttings, such as ribes, laurel, privet, golden elder and others, are made in October and inserted with nearly the whole of their length covered in, and these, too, stand a year, when they are lifted and passed to the outdoor department. Their after cultivation no longer concerns the indoor part of the " hardwood " department, which is mostly concerned with the first year's life of its stock.

CHAPTER II

THE "CUTTING" GROUND

BEFORE dealing with the propagating house we will take a look at the cutting ground, that most essential feature on any nursery where shrubs, conifers and other such things are propagated. For the moment we will not refer to that larger portion set aside for autumn cuttings of ripe wood such as briers, manetti, green privet, laurels, etc., but to that more important part, covered with glass, reserved for the reception of cuttings made from half-ripened wood in August.

The plot of ground selected for this purpose, be it large or small, should enjoy a sheltered position, especially secured against strong and cold winds. This shelter is necessary, and if such does not exist it must be made, preferably by the planting of hedges, not only all round but in departments. The best shrub we know for this purpose is Thuja lobbi, which quickly makes a good screen, is exceedingly handsome in itself, evergreen, and free from large-spreading roots such as hornbeam, holly or even privet. Kept topped at the height of 6 feet and clipped in fairly close it makes a green wall which is almost impervious to the wind. The aspect should be facing north or north-west, so that the lights which may be used shall not be subject more than is preventable to the direct rays of the sun, for the nature of the class of cuttings to be struck there is such that sunshine is the great destroyer if too direct and strong.

PREPARATION OF THE SOIL

The preparation of the ground, where such has to be made, should be put in hand in good time so that it may be thoroughly cleaned, without a single perennial weed to give after trouble. If a crop of early potatoes could be taken from it as a step toward its preparation so much the better, for this work cannot be too conscientiously done. There is nothing a much greater nuisance or a worse disturber of the peace among cuttings than a stringy root of speargrass, a thistle, a piece of dock or a stinging nettle, for they cannot be removed without disturbing and upheaving a dozen

cuttings. The careful man whose duty it is to clear the ground simply makes it impossible for this to occur.

Then the ground must be laid out, that is, broken up into sections by the planting of Thuja lobbi or whatever subject is used for the hedges. A section should not exceed 50 feet in width if the whole of the space is to receive a share of the shelter thus provided. Next, each section is marked out into beds 3 feet wide, or whatever may be the length of the lights you intend to use, leaving the space of 1½ feet between the beds. Make the soil in the beds firm by treading, then level with a rake and cover with about six inches of good yellow or white sand—not of a gravelly nature but more resembling silver sand of only moderate coarseness. In most localities suitable sand may be obtained without difficulty. Washed sea sand, after standing long enough to lose its salt, is as good as any.

We have always used one form or one size of light and have never yet had reason to be dissatisfied with it. It is, as our illustration shows, of the " box " pattern, all in one piece, and it is 3 feet long by 2 feet wide, rising 12 inches at the back and falling to 6 inches in

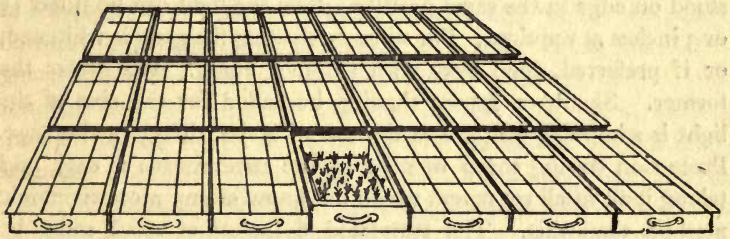

FIG. 2.—Three rows of box-lights

the front ; this sharp fall effectually preventing the dripping in of any rain unless there is some defect in the glazing. Such a box-light is inexpensive to make and of a usable size, neither large nor heavy. It would probably cost twice as much if the top was detachable or even movable. Made strongly with well-seasoned wood and with 21 oz. glass, painted every second year, we may look upon a life of ten years as the minimum during which it will be of service.

We shall probably be told that this kind of light is old-fashioned and out of date, that regulation two- or three-light frames may be

used or permanent ranges ; or that cuttings may be rooted in pots or pans, of all which we are perfectly aware. But these box-lights are extremely economical, are easy to handle, and if we may judge by results our method of using them is so satisfactory that if to-morrow we were called upon to organize a new cutting ground we should proceed upon the same lines because we have thoroughly proved them.

The lights are set out over the beds as our illustration shows, the space between the lines being 18 inches, a space which, while ample, allows but just sufficient way for the workers to pass between, carry water and give other necessary attention. It will also be noticed that no space between lights is given as these are set closely together —not jambed, but easily, just so that a light may be removed or otherwise manipulated without disturbing its neighbour. There remain one or two more details which will further illustrate their economy. No provision is made for ventilation from the top, but a square block of wood is allocated to each light. It is 1½ inches in thickness and 3 inches square, so if a little ventilation is needed this block is inserted under the front centre, or if more is needed it is stood on edge in the same position—thus the light can be tilted 1½ or 3 inches as required. For summer shading the glass is whitened, or if preferred done over with summer cloud. We prefer the former. Should a denser shading be called for the size of the light is admirably adapted to the use of scrim, tiffany or dunnage. Protection during sharp weather by the same means is easy, and taking it all in all we repeat we do not know of any more economic method than this. The stipulated 6 inches of sand must be well firmed with the back of a spade, for cuttings, especially hardwooded cuttings, must have a firm base on which to stand and an equable pressure all around the bottom, though it matters little about any pressure around the collar. This instruction suggests that the sand used must be free and not adhesive—it should not be of a clayey nature, but when fairly dry run freely through the hands. It goes without saying that a good level should be maintained throughout, but if this cannot be then every light must have its own dead level, otherwise it will be impossible to keep the moisture even. We are inclined at times to take ourselves to task for referring to little details, but we know how important they are in the aggregate

and sometimes in themselves. For example, if a light was on the slope the water would run off the lower end and the cuttings at the higher end perish, and so on. Learners should lay to heart the real greatness of small things, for this lesson is of the utmost value and will stand in good stead to those who realize and appreciate it.

The "Open" Cutting Ground

Though it is usual in large nurseries to work this portion of the cutting ground with a different staff, yet it is a great convenience for both to be contiguous. A sheltered position and enclosing hedges are as helpful in the one as in the other; but with the "open" portion the sections might be considerably larger and the hedges higher. But the soil should be just as thoroughly cleaned and tilled, and it should partake of a sandy character, even if a dressing of sand has to be dug in. There are very few cuttings that do not get on all the better with sand than without it.

A south or south-west aspect should be chosen as being the more favourable, for the objection to the direct rays of the sun does not here apply, because in the first place we are not dealing with only half-ripened and growing wood, but with that which is ripened, dormant and in most instances free of foliage. Being inserted in the autumn, the cuttings are not exposed, unrooted, to the fierce summer sun, for before it has climbed very high up in the late spring they are rooted and growing and well able to withstand the ordinary summer. A southern aspect is more likely to encourage the early emission of roots and a strong growth, so long as the shelter hedges are able to efficiently ward off the coldness of the spring east winds.

Spade Work

The whole of the work in this department is spade work, and none but good spadesmen are entrusted with it. The tilth and cultivation must be the best in the nursery, pulverized to the depth of 1 foot and absolutely free from stones, for this soil has something more to do than merely encourage the growth of root: it has to produce them, to preside over their birth and to nourish them as carefully as a mother nourishes her babe. To this end the soil must be what we older people call "kind," and it must be "warm." A

clay sub-soil is best avoided, for it is not conducive to warmth. The sluggish drainage it causes is bad for cuttings, which feel much more comfortable and do far better when the sub-soil is gravel or chalk. We do not go the length of asking that this cutting ground should be regularly trenched; but this should be done when the ground is first made, after which deep digging is all that is required. Cuttings are often put in to the depth of 9 inches, and it is necessary to break up the soil from 12 to 15 inches.

Do cuttings need manure? No; but if the same ground is being used year after year, potatoes or some other manured crop should be grown every fourth year, so it is not a bad plan to make the ground of sufficient size and to plant one-fourth of it each year, in rotation, with a suitable crop and so get it back into "heart."

CHAPTER III

HARD-WOODED CUTTINGS

THE making of hard-wooded cuttings differs from that of making most softwooded cuttings in that a heel of older and harder wood is attached. As their name implies, soft-wooded cuttings are soft, fleshy in character and are propagated under conditions which helps them to do their work quickly—such being essential to their success. But hard-wooded subjects have no super-abounding sap, their blood is more sluggish, their vitality less exuberant. As their natural life is much longer their progress is correspondingly slower, a matter we referred to sufficiently in our opening chapter.

Just as the development of the shrub is relatively slow, so is the cutting slow in rooting, taking sometimes as many months as geraniums and other soft plants take days. The propagator, taking his plants as he finds them, falls in with their natural habits, knowing how futile it is to run counter to them. He makes no attempt to hustle them, not even to gently force them, for experience assures him the end of such attempts would be failure.

There are exceptions. We can just remember the time, some half-century ago, when we used to strike the soft wood of aucuba japonica in heat, but at that time the plant, now so common, was not well known and was in fact scarce. It lent itself to this method, though there was quite a large percentage that died, but no one in these days would think of reverting to that obsolete practice, for we have for many years known it to be as hardy and as easy to propagate as the common laurel.

Now why are most—the great majority—of hard-wooded cuttings made with a heel of older and harder wood? We made many thousands even in our young days, but we regret we were never enlightened as to the reason—probably because the propagator under whom we learnt did not himself know and was not sufficiently curious to find out. So far as we know and have been able to work out our own theories there is a two-fold reason, or perhaps we might more correctly say there are two reasons. The first is, that because of the lengthy and trying period between the time the cutting is

made and the time it is rooted (several months at least) it needs a firm and durable base which will not readily decay while the process is going on. The second is to create a kind of a dam to retard the escape of the scanty sap within the cutting, and by thus retarding it contribute to the formation of a callus which will eventually emit roots. These at least are the assumptions we have worked upon, and though we have experimented again and again (a thing all real learners should do) the results have invariably demonstrated the superiority of cuttings made with a heel over those made entirely from current season's growth.

In the accompanying illustrations (Fig. 3) we have endeavoured to figure a selection of cuttings, the major portion of which are made with heels. They are as follows :—

A Golden Yew (*Taxus baccata elegantissima*).
B Irish Yew (*Taxus fastigiata*).
C Double Furze
D Berberis (*Berberis stenophylla*).
E Juniper (*Juniperus sinensis*).
F Aucuba (*Aucuba japonica*).
G Cypress (*Cupressus lawsoniana*).
H Laurel (*Laurus caucasicus*).
I Arbor Vitæ (*Thuja lobbi*).
J Euonymus (*Euonymus*).
K Laurestine (*Laurestinus*).

A small proportion of these cuttings are made without a heel, but where this is so it is either because the base is below the current season's growth and the wood therefore harder and so equivalent to a heel, or because the character of the wood is softer and sappier and therefore more quickly rooting. The golden privet is a very good example of this latter, for it will strike just as readily without a heel as with one. This shrub can also be readily propagated from soft wood in heat, and is so increased by many thousands every year. Flowering shrubs, grown and forced in pots, such as *Deutzia gracilis*, *Hydrangea paniculata*, *staphyllea* and *ceanothus*, are often propagated from the forced wood exactly in the same manner as fuchsias and other greenhouse plants are propagated, viz. from the tips of young growths. But of course these are the exceptions—

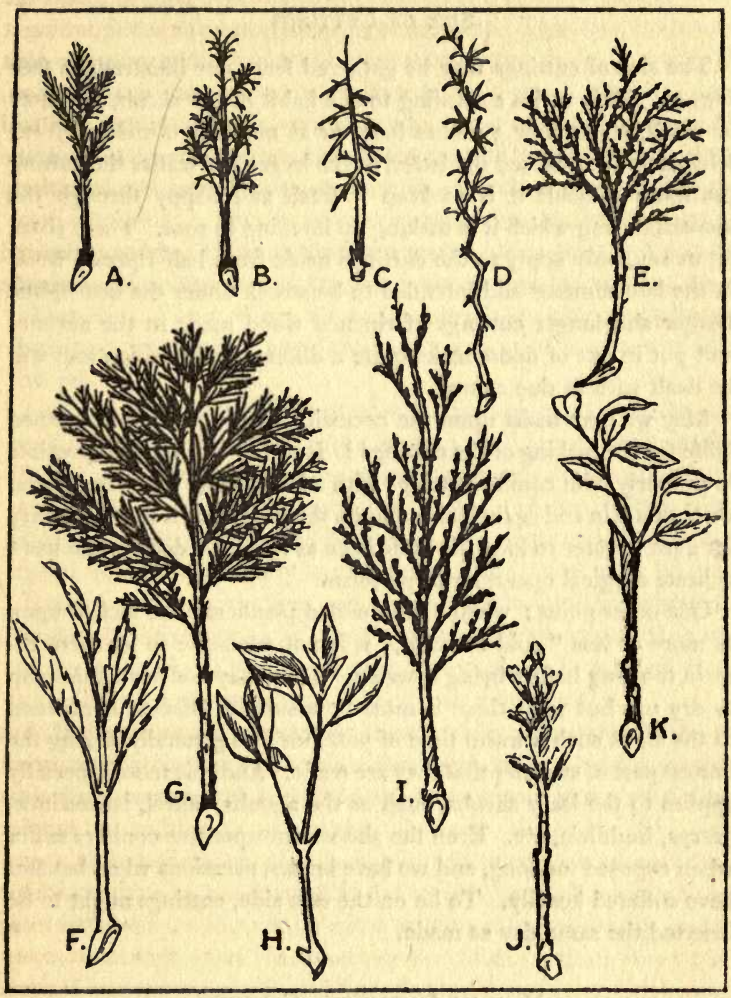

FIG. 3.—Hard-wooded cuttings

worth knowing, especially if it is found desirable at any time to rapidly increase stock.

Size of Cuttings

The size of cuttings may be gathered from our illustrations (see Fig. 3). This varies according to the habit of the shrub, and may be small, about 2 or 3 inches long, or as much as 6 inches. Very seldom do they exceed the latter, as the larger and leafier the cutting the more difficult it is to keep it fresh and happy through the months during which it is making up its mind to root. These sizes, let us say, only apply to the cuttings made from half-ripened wood in the late summer and intended to be struck under the box-lights. Larger and longer cuttings of ripened wood made in the autumn and put in out of doors make quite a different proposition and will be dealt with in due course.

May we here insist upon the necessity of using a well-sharpened knife for the making of the cuttings ? It would be almost impossible to properly trim conifer cuttings with a blunt knife ; but in general we have again and again insisted upon the point that it is as necessary for a propagator to have his knife keen as it is for a doctor who has a delicate surgical operation to perform.

One other point : while hard-wooded plants may be looked upon as more or less " cold-blooded," it is not advisable to let them remain too long before being inserted. They may not have much sap to dry up, but what there is must be assuredly affected if exposed to the air at such a warm time of year, for it is generally during the hottest part of summer that they are made. And this more especially applies to the leafy shrubs, such as the aucuba, laurel, laurestinus, garrya, buddleia, etc. Even the almost unresponsive conifers suffer when exposed too long, and we have known occasions when batches have suffered heavily. To be on the safe side, cuttings ought to be inserted the same day as made.

How to Insert the Cuttings

The " knee-drill " incidental to the insertion of the cuttings, when the work is carried on day after day, becomes rather trying until one gets used to it, and I have often heard the wish expressed that we had

a pair of hinges in our back. But it must be gone through with, for there is no other way of doing the work satisfactorily. The workman provides himself with a straight-edge, e.g. a lath 2 inches in width and cut just to measure the width of the light. This he lays squarely along the back, and against its front edge inserts his cuttings at from 1 inch to 2 inches apart according to their size. He firms each cutting with his dibble, and when the row is complete he turns his straight-edge on its edge, removes it without loosening any of the cuttings, and lays it down again with its back edge flush with the row of cuttings. This he repeats in every row, so that they are all 2 inches apart. The neat workman grades his cuttings and gets the higher ones in the centre, grading down so that the shortest are at either end. You may say there is not much in that: perhaps not, but it shows the neat and keen workmanship of a man who likes his job.

When the space is filled, a good watering is given to settle the sand well about the cuttings, the light is put on and immediately shaded. Every morning during the warm weather a very slight sprinkling is given just to keep the atmosphere moist and the foliage fresh. Usually a callus has formed before the autumn has gone, and roots begin to come quite early in the spring. Protection must be given during very sharp weather, and on favourable days throughout the winter the light should be lifted and the cuttings inspected in case of damping off. The only remedy against damp is to admit air by a slight tilting of the light on a bright yet mild day.

If they have done well they should make such roots during the spring months that by the time the lights are wanted for the next lot of cuttings they should have been transplanted into nursery beds.

CHAPTER IV

THE PROPAGATING HOUSE

Grafting

In the production of some of the choicest of our ornamental shrubs it is found that considerable time may be gained by grafting rather than by the more ordinary practice of cuttings. This method is widely used to increase the variegated forms of our most popular shrubs, for the types are easily raised from seed, as stocks, and of course the variegated forms cannot be. Golden and silver hollies, golden and other yews, golden cypress and thujas, the most beautiful variegated ivy (*H. madarensis*), these and others are largely propagated this way even though most of them can also be increased by cuttings.

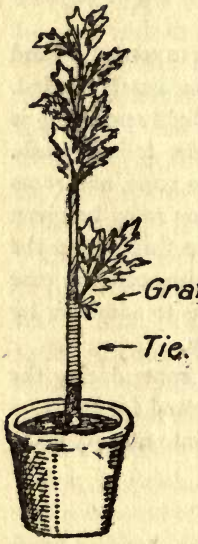

Fig. 4
Grafted Holly

For this purpose we have to fall back on the propagating house, and this we have already referred to as the real workshop of the hard-wooded propagator where he starts the year by grafting roses. The stocks, whether yew, thuja, cupressus, ivy or what not, raised from seeds or from cuttings, are potted up in the early autumn just as rose-stocks are potted up, and plunged in the open ground. There they remain for a whole year, unless urgently wanted, and thoroughly establish themselves, for only so they can be considered reliable.

Grafting does not take place so early in the year as is the case with the rose, but in the early spring, and our own routine always is to fill the propagating pits with grafted roses throughout January, February and early March, by which time we have finished, and then to occupy their space with the subjects we are now treating of. We have never considered it a good policy to mix up shrubs and roses in the same pit or house, for they need different treatment,

more especially as regards temperature, the roses reaping considerable advantage from a bottom heat we should consider too great for the shrubs.

In grafting hard-wooded hardy subjects we proceed along similar lines to those already described for roses, and set forth in Vol. III of this series, with one particular and important exception—we do not behead the stock but graft the scion on to its side. The stock is not decapitated till the union between itself and the scion is effected, and the reasons we might give for this are the comparative sluggishness of the sap which calls for every inducement to activity (and this only the active top growth can assist), and also that if the scion fails to unite, the stock has still a value and can be planted out with others of its kind in the nursery quarters. There may be other technical reasons, not perhaps known to the practical man, but we only care to state the deductions we have made from our own extended experience; these alone we feel ourselves in a position to defend.

FIG. 5.—Thuja grafted

Our annual list of subjects for grafting comprise the following: variegated hollies, ligustrums, golden and other cupressus, variegated yews, thuja aurea, golden junipers, variegated and other ivies. Occasional subjects include lilac, rhododendrons, azaleas, rhus, daphnes, etc., and in the great majority of these the treatment is almost identical. Some of them have hard, unyielding wood, and the operator has to depend upon the trueness and accuracy of his work, as with roses, to make a satisfactory fit; but the wood of most of the conifers is more plastic, and will so give to the pressure of the ligature that any slight irregularities in the cut are obviated. Still, good clean knife-work ought always to be the rule and may be

invariably depended on from the skilled propagator, to whom such an accomplishment is as sacred as a religion.

The Advantages of Grafting

Compared with the length of time it takes to grow these particular subjects from cuttings there is, at the least, a whole year gained by grafting—often a great deal more, as we shall have occasion to show. We have almost invariably found that plants grafted in March and April are by the autumn equal to two-year-old cuttings, and this may be readily understood when we remember that when a scion, one month after grafting, has become incorporated with the stock which it promptly disinherits, it comes into a perfect and established system of roots more than equal to what a cutting can make for itself in two years. Add to this that this root system retains its natural vigour, that of the original stock, and in this possesses a great advantage over the " own roots " of the cutting which is slower and shyer than in the " type."

As to the general treatment of grafts a few instructions are necessary. While they are in the propagating pit the bottom heat afforded them must be only moderate. Air must be admitted every day and all day after the first week. There must be no idea of " forcing," and the temperature must be looked upon as merely " helpful " and not " driving." For the first week, save and except the morning drying of the lights, the frame should be kept close and well shaded. Directly the lights are off for draining give a slight sprinkling from a fine rose or syringe, only just sufficient to damp and keep the foliage of the scions fresh. If sprinkled heavily the water might by some mischance penetrate between the scion and the stock with fatal results. When it is really necessary to water it must be done without the rose or without wetting the tops, the slight sprinkling recommended being nothing more than a dew which will have evaporated during the short time the lights are off. After a fortnight, when a callus has practically blocked up every possible ingress and there is no longer any danger of the moisture penetrating, the sprinkling may be heavier and the lights off longer.

It has always been our practice to keep the grafted stocks in the pit for a month, gradually exposing them by removing the lights for

lengthening periods, for by the end of that period if a scion is going to die off it shows it, and the others can be seen to have taken. Then as we remove them to the open stage we behead them carefully. Only a very small percentage, perhaps five or six, will be found to have failed, and these we take back to the place from whence they came, and in due course they are planted out with others of their kind. The successful ones, after about three weeks on the stages of the propagating house, where they have been shaded, are put out into frames, nursed for a while, and then thoroughly hardened. During the summer they consolidate and make a little growth, and in early autumn are taken right away and planted in the nursery beds, that is such as are not to be grown on in pots, in which case those required for that purpose get a shift into 48's, when they are removed from the house to the frame.

FIG. 6.—Grafted Golden Privet

STANDARD GOLDEN PRIVET

We included the *ligustrum* (privet) in our list of subjects, but this we treat somewhat differently to the others. It is a much more sappy subject, and we do not hesitate to treat this as we treat the rose and behead it before grafting. It is a quick plant, and we do not dream of keeping it a full month in the propagating pit, two to three weeks being ample. It happens to be one of those shrubs you can take liberties with, responsive to conditions and certainly retentive of life. The ordinary golden privet is always in great demand and is easily raised from cuttings, thus we never now think of grafting it; but it is very popular in the form of short standards, and it is to fulfil this demand that we do graft it. To produce the stocks, we plant a quantity of one-year cuttings of *L. ovalifolium* very

thickly in a bed and in a couple of years they will have run up single stems 5 feet high. These we lift and pot in October, then a fortnight before we want to work them we bring them in to a hot-house and stand them round the paths. In a few days they are active and throwing out growths at every bud. We rub these off, leaving the upper ones, until at grafting time we head them back and graft at what we consider to be the height for which the stock is suited. They stand just where they are, and in a fortnight the union is effected. Their after treatment of keeping free

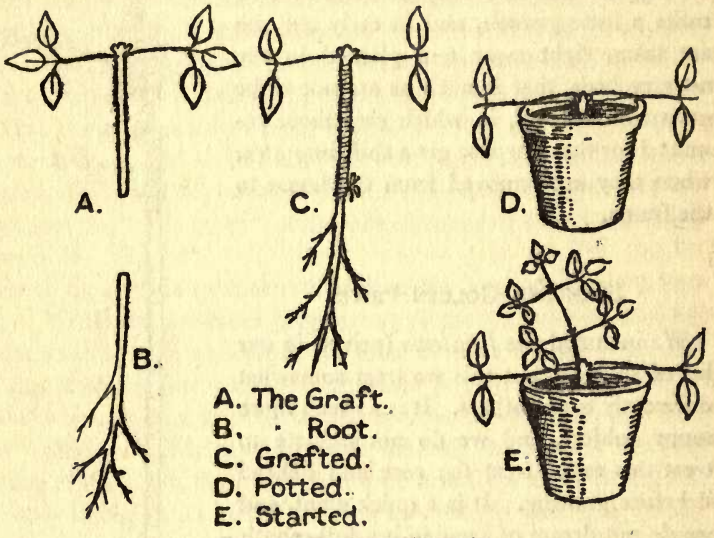

FIG. 7.—Grafting Clematis

from suckers and hardening off follow the usual lines, and by midsummer most of them find themselves either planted out in nursery rows or plunged in pots.

It is not our province to treat of the grafting of more obscure and difficult shrubs, but only of those which are recognized market lines or for which there is a very general demand direct from the nurseries. Anyone writing a treatise on the "Art of Grafting" could find much of technical interest to disclose as to the various methods of stem grafting and root grafting, also of inarching, which is but another way of grafting. It is a very interesting art, traceable

back through the centuries, but though it is so old and takes so many forms the principles involved are always the same, and the essence of simplicity.

Grafting Clematis

It might be found convenient here if we briefly refer to the grafting of that ever-popular hardy climber the "Clematis." The more modern method of working these on the stem of *Clematis vitalba* has much to recommend it, especially on the score of producing strong saleable plants in record time; but where huge quantities are to be worked the methods of the famous old specialists who made the clematis what it is, are worth putting and keeping on record, and are yet largely practised. Our earliest years were spent with one of these great specialist firms, and we cannot do better than record our own routine. In those days it was all root grafting, and to supply the necessary roots a large number of *C. flammula* were grown in the open ground, lifted when required, deprived of most of their roots and replanted. The mother plants in variety, to supply the necessary grafts, were grown in pots, and about the end of February they were taken into a moderately heated house to start them. Directly the wood was ready, that is fairly firm without being hard, the grafting began, and each one was inserted in a thimble pot, the compost being purely peat and sand. The propagating pit not being large enough to take several thousands, it was supplemented by several hot-beds, a brisk bottom heat being a *sine qua non* to success. A glance at our illustration, Fig. 7, will show the procedure better than we can describe it.

Fig. 8.—Clematis after six months

Two or three weeks were generally sufficient to start growth, and the potting of the started plants was an almost daily job, because

directly the new growths were 2 inches long they were lifted out of the pit or hot-bed to more airy quarters and potted into 60's in a more generous soil. These young plants made rapid growth; in three months they were established plants in 48's, with a foot to 2 feet of growth to their credit, and by the time they had been in existence six months they were well hardened, ready for plunging out to await the spring sales.

CHAPTER V

ORNAMENTAL HEDGE PLANTS

THE principal plants used in the making of ornamental and at the same time useful hedges are Arbor vitæ, euonymus, holly, privet and yew. Of these, some are raised from seeds, some from cuttings, and some either way.

The Arbor vitæ practically reduce themselves to two varieties, *Thuja occidentalis* and *T. lobbii*. We have already referred elsewhere to the latter and given it that, in our opinion, it is the best of all the hedge plants, for it grows densely and quickly, probably three times as fast as the yew, than which it is much less spreading.

Incidentally we may here mention that it makes a magnificent specimen tree, and we have seen pieces 40 feet high clothed and feathered to the ground running up a perfect cone from its broad base to its thread-like apex.

The seeds of both these Arbor vitæ should be sown in pans in May, using a light but well-firmed compost. They should then be stood in a cold frame or under a handlight, being kept close and shaded till the seedlings appear through the soil. Or, either of them may be raised from cuttings, made and treated as shown in Chapter II. Of the two forms we prefer the seedlings for hedges, as they appear to be more vigorous in their habit, though perhaps this is more noticeable during the first two or three years.

ENGLISH YEWS

The English yew is a magnificent subject where a thick high hedge is needed. It is the most highly prized as it is the most notable and typical of all our hedge trees. It is suited to a large garden where everything is on the large scale, and fits in best with old English surroundings. It is slow-growing and long-lived, and has a proclivity towards growing in width equal to its height. While it can be and is very often raised from cuttings, the major portion are seedlings. In most parts of the country where land is expensive growers prefer to buy one or two-year seedlings rather than raise

them themselves, purchasing from some of the large Northern growers who have plenty of cheap land at their disposal. Many, too, are raised on the Continent and imported here. Occasionally we have had to purchase, but on the whole we rely upon cuttings, as our requirements per annum do not run into many hundreds. The way in which we make our cuttings is shown in Fig. 3.

Hollies

The green holly forms a good hedge and is a good resistant. It is quite popular, and because it can be clipped hard with impunity it may be used in quite small places. The plants are almost wholly raised from seed, as this is a comparatively quick and inexpensive method—seeds which may be gathered on the country side costing but little. During the winter the berries are heaped, or put in a barrel, and mixed with sand. By spring the flesh of the berries has rotted and the seed only remains. It is, with the sand, sown in March, by being strewed along trenches 2 to 3 inches deep and covered in. They do not come up quickly nor all together, some seeds lying dormant for a year ; so the rows remain undisturbed for two years, by which time most of the seedlings are large enough to handle and transplant. At three or four years old they are ready for sale as fit for making hedges, being far more successful when planted at that age than at any subsequent period. Variegated holly is seldom used for hedging; it is too expensive for one thing, and a clipped variegated holly loses all the best effects of its variegation.

Euonymus

The green euonymus (*E. japonicus*) and its golden variegated form are both very suitable and effective plants where only a dwarf hedge is needed. Their glossy dark green and green and gold foliage is refreshing, and they grow very quickly indeed. They are both among the easiest of shrubs to raise from cuttings, and by the time they are two years old they are saleable. In growing a quantity of these or the other variegated varieties, or indeed in planting a hedge, an exposed position should be avoided except in the favourable climate of the south. With us, on the exposed uplands of the East coast, the late spring frosts and the east winds play havoc with the

younger growths unless they get the benefit of some sheltering trees or hedgerows. This certainly militates against their general adoption in certain localities, but on warm soils and in sheltered positions nothing could be fresher or prettier for a hedge up to 3 feet in height.

Incidentally we might mention the fact, taken up again later, that the various kinds of euonymus are used largely for window-boxes, more especially the variegated forms.

Privet

Ligustrum ovalifolium, the oval leaf privet, has practically superseded the old narrow leaf evergreen variety, and that entirely on its merits. It is the best known and most largely used of all garden hedge plants because of its utility and effectiveness. There is an absence of grossness about it which is peculiarly desirable in plants which have to be kept within bounds, yet its density is such that it is admirably adapted to the making of screens and of shelters. It becomes quickly effective, it is increased rapidly and easily, it is inexpensive, and because of this the demand is practically unlimited. It is therefore a good, a "certain" line for the grower to take up, for it may be stated with certitude that at no time during recent years has the supply been equal to the demand.

The upspringing of garden cities is bound to increase that demand, for while in most other things the popular tastes vary very considerably the popularity of this privet as a hedge plant is universal. We find in it a line worthy of special attention, and our preparations for propagating up to the full extent of the demand are thorough. We have plenty of uses for privet hedges in our nurseries, and if we wanted them for no other purposes we should still have planted them for stock. We are in a position to make some hundreds of thousands of cuttings every year, and the growing of them costs nothing because each hedge is a utility hedge and is doing its work by sheltering young stock beds.

Cuttings strike very freely. No one dreams of making them one at a time with a knife, and this is one of the exceptions we make, for we have elsewhere strongly advocated minute care in the making of cuttings. But with this plentiful and easy-rooting subject we take

great liberties and simply chop them up by handfuls with a sharp bill-hook, cutting them in lengths of about 9 or 10 inches. We do this in October and November, spading them into trenches in the open ground, treading them in firmly and leaving not more than 2 inches above the soil. They remain in the cutting rows for one year, are then lifted and trimmed and transplanted into nursery quarters, where in two years, after being cut back, they make bushy, saleable stuff.

Golden Privet from Cuttings

The privet with the greatest future before it, especially for the nurseryman, is the golden variety. We say " for the nurseryman " because they strike almost as easily as the green variety, are fairly freely produced, take up no more space, but are worth twice as much. More care is advisable in the making of the cuttings and they have to be dealt with singly. Though the plants do not produce as many cuttings as *ovalifolium* at a time, yet in the aggregate a plant produces almost as much stock by reason of the smaller lengths into which the wood is cut for cuttings and the supplementary methods of propagation which go on throughout the growing season. When the hedges are clipped at the end of May or in early June the soft tips are made into cuttings and struck under glass ; in August more wood, slightly harder, is available, and this is struck under the ordinary hand-lights, as described in Chapter III ; in October and November cuttings of riper wood are inserted in ordinary frames, or in warm localities are made longer and rooted side by side with the green variety in the open ground. Thus with these three distinct seasons for propagation we are fully justified in claiming that the golden privet is almost as prolific of stock as is its green parent.

Coniferæ for Hedges

While those referred to are the best known and more generally used, there are several other no less effective hedge plants whose uses are more local than general, but which in suitable climatic and other surroundings are as desirable as any. Of these we would give first place to *Cupressus macrocarpa*, a very elegant, light and free-growing conifer, which might even be preferred to thuja lobbi in

the southern part of England. It has not the same sombre green as the ordinary cypress or as the thujas, and though it grows quickly it bears the close clipping necessary to a good hedge.

This useful conifer cannot be readily raised from cuttings, but it is one of the best to raise from seed, if sown in pans in May and raised in a cold frame. Neither does it bear transplanting very well, and because of this nurserymen grow them on in pots plunged in the

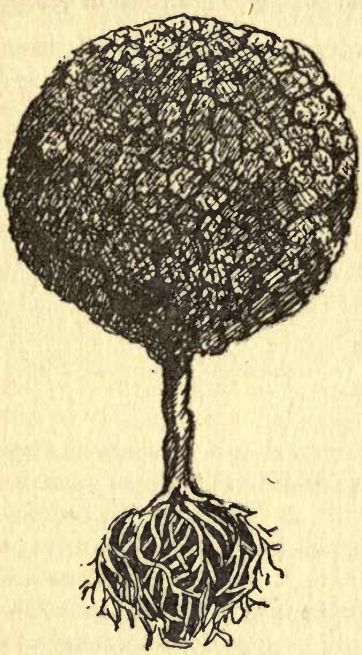

FIG. 9.—A clipped box (*Buxus*)

soil of the nursery, so that at a young age they may transplant without disturbing the root.

Incidentally, as a specimen, *C. macrocarpa* is one of the finest conifers, and we have seen magnificent pieces even in some northern counties.

Among other hedge plants we find *Aucuba japonica*, not always satisfactory it is true ; bay (*Laurus nobilis*), very slow growing but practically impenetratable when grown ; box, once so largely used,

always good and effective; berberis, in several pretty varieties; cotoneasters, found in old cottage gardens, but ornamental by reason of its numerous red berries; veronicas of sorts and *Escallonia macrantha*. None of these should be grown in quantity for this use, but there is a limited demand and the market nursery can always dispose of a certain number. They are all propagated from cuttings made from half-ripened wood in August and September, and can be struck under the box-lights described in Chapter III.

CHAPTER VI

ORNAMENTAL TREES—STANDARDS

THE standard form of ornamental trees is a very popular one and has its own special uses. Many of the varieties cannot be effectively used in any other form because of the dimensions to which they attain. A scarlet oak, for example, or a purple beech, planted as bushes in a shrubbery would prove as destructive to their companions as a young cuckoo would be in a nest of young yellow-hammers.

While the variety of standard ornamental trees reaches quite a formidable number, " market " varieties are, fortunately, limited, there being no such " weeder out " anywhere as the market. Only those that are well known, in general use, and comparatively inexpensive " need apply." Rare and choice varieties are still left to the care of the general nurseryman. We offer here what we deem to be a fairly representative collection for our purpose, to which others might be added but none taken away.

Acacia.
Acer negunda variegata.
Ash—mountain, variegated and weeping.
Beech—copper and purple.
Cerasus—double flowering cherry, in variety.
Chestnut—scarlet.
Crabs—Siberian, John Downey and Pyrus malus vars.
Elm—variegated and weeping.
Laburnum.
Thorns—double and single reds, pinks and white.
Oak—scarlet.
Prunus Pissardi.

To these we feel obliged to add three which are not strictly ornamental but are used as such in numbers far in excess of any of the above. We refer to the birch, than which, in our opinion, there is nothing more ornamental than a well-grown solus specimen, for " the lady of the woods " is by no means out of place in the garden,

and the lime and plane, used largely for screens but also as specimen trees. In any case the great demand for these for garden purposes makes them worth growing by the nurseryman who depends upon the market.

FIG. 10.—*Prunus Pissardi*

The whole of this selection possess the merit of being comparatively easy to produce. Some are raised from seed, some budded, some grafted, some layered. It would be more correct to say that only one is layered, that one the lime. To procure the wood for layering, a sufficient number of trees are kept as stools, in the same way as cob-nuts and filberts, the layering being done either late or early in the year. They root easily, and are separated from the parent the following fall, planted out and, as they are single rods, are kept trimmed and run up to 6 feet standards.

ACACIAS,

mountain ash, laburnums and planes are raised from seed. The seeds are sown in February or March, and if not sown too thickly can remain in the seed rows two or even three years, for so will they best run up. After transplanting, it is just an ordinary matter of knifing to prevent them branching until they have made sufficient stem. When once they have accomplished that, the heads are quickly formed and the trees become saleable.

ACER NEGUNDA VARIEGATA,

the most conspicuous and best known of the maples, is a quick grower and speedily becomes effective, hence its popularity. Its creamy-white and green foliage relieves the shrubbery from any

taint of sombre suggestion from May till October. It is a tree which more often is grown as a bush than as a standard, though it must be grown as the latter when used as a back-row tree. It is propagated by budding on young stocks of its common form, standard high if the stocks allow of that, for it is not run up so easily on a single stem as the thorns, for instance. There is one peculiarity in budding acers worth calling attention to and it is this: whereas in budding most subjects the tying begins at the bottom and finishes at the top, above the cut, it is advisable to reverse the order with the acer, otherwise the bud, because of its slippery character, is displaced or even comes out.

Ornamental Crabs

are budded or grafted as required. Some of the varieties with slender growth need to be grafted standard high, but both the Siberian and J. Downie are strong enough to run up into standards about equal to Cox's orange apple. They should both be worked on the free-growing crab stock. Almonds and *Prunus Pissardi* can be budded on the mussel stock exactly as fruiting plums, and both will attain standard height if so cultivated. The double-flowering cherry may also be budded or grafted on the cherry stock. Scarlet chestnut may be raised from seeds but is just as often grafted. Elms, except weeping, are budded on the common elm in August, and the weeping varieties are grafted on the same stock at a good height. Both this and the weeping ash or willow should be grafted from 8 to 10 feet high, for only by allowing a sufficient stem can the trees ever attain full specimen form.

Scarlet Oak,

like the chestnut, may be grown from seed but it is too slow to profitably rear standards that way, so they are grafted when grafting is afoot in March.

Thorns

And now we have only the thorns. There is no doubt as to the claim of these to be considered as ornamental trees. No other flowering trees figure more largely in our gardens in the late spring. Paul's double scarlet, for example, is rich and beautiful beyond words —a huge warm mass of colour. This variety is in much greater

demand than the pink and the white and so must be grown in greater number. All of them are budded on the ordinary Quick thorn. The stocks are planted in the autumn and the treatment from start to finish is exactly that which is given to fruit stocks and fruit trees. Budded low down in the stock in August, a strong growth takes place the first year. Standard height is reached the second year, then by a trimming away of side growths and the stopping of the leader a head is formed, and a three-year-old tree is usually better than most of the best three-year-old apples. We have always found standard thorns peculiarly satisfactory to grow, never had any unsolds left on hand, and always realized a fair price.

Hygienic Conditions

Let it not be supposed that having said so much, or so little, we have said all that is to be said. These trees need cultivating ; they need to be kept clean and healthy, and it is not to be taken for granted that they are not as subject to pests and diseases as other trees. The cerasus, the crabs, the prunus and the thorns are often as badly hurt by aphis, and the almonds by aphis and red spider, as any fruit tree can be, and they must be just as carefully attended to and relieved. We have seen American blight so bad on thorns that the trees have had to be destroyed. And while it is important thus to look after the top growth, healthy conditions for the roots must be assured, and this is especially the case with the slower growing oak and beech. If they are provided for at planting time, well and good, and if they are not, then nothing we can do later can make up for it. The nature of the soil, provided it be well worked and well drained, is not a matter of very great concern, seeing that no one would be likely to attempt nursery work on unsuitable land ; neither does the question of feeding come in, for if the hoe is kept going throughout the season the stirring of the soil will keep them going. The finest specimen weeping ash we ever saw, covering at least a rood of ground, aged, yet flourishing like a sapling, had its roots down into and roamed at will in the passages and walls of a Roman villa !

CHAPTER VII

CULTIVATION OF FLOWERING SHRUBS

We have already dealt with the propagation of flowering shrubs from cuttings and have now to write more particularly of their culture, for there are so many kinds and they vary so much in character that it would be impossible to treat of them under the heading of "general cultivation."

We are particularly rich in flowering shrubs. Many are indigenous, the greater part are importations. The whole world has been ransacked and its treasures poured into this country, and most of them have become so acclimatized as to feel as much at home as those native to it. When the rhododendrons and azaleas are at their best in the woodland glades or in conspicuous places in large gardens, lighting everything up by their blaze of colour, who would think for a moment that they were aliens? Yet most of these have reached us from distant great mountain ranges or equally distant bog lands, in every continent and from every zone, and have made themselves thoroughly at home so long as they are supplied with their elementary needs. And with them have been brought many other shrubs, several of which call for treatment approximating somewhat to their native conditions, so that it is impossible to prescribe a general treatment.

For the sake of method it will be advisable to name a fairly representative selection of the better-known varieties, though, as we are not compiling a catalogue, we permit ourselves to leave out a good number which are more or less unknown. We will, at the same time, as a matter of convenience, add the ordinary methods by which they are propagated, and where a peaty soil is required we will add that.

Amygdalus (varieties of almond).		Seed and budding.
Azaleas	in variety.	Seed, cuttings, grafts. Peat.
Berberis	,,	Cuttings.
Cotoneasters	,,	Cuttings, seed.
Cytisus (broom)	,,	Cuttings, seed, grafts.

Daphne.		Cuttings, seed, grafts.
Deutzias	in variety.	Cuttings.
Ericas	„	Cuttings. Peat.
Forsythia	„	Cuttings.
Genistas	„	Cuttings.
Hydrangeas.		Cuttings.
Kalmia latifolia.		Cuttings. Peat.
Laurestinus.		Cuttings.
Ribes.		Cuttings.
Rhododendron.		Seed, grafts. Peat.
Spiræas	„	Cuttings, divisions.
Syringa	„	Cuttings, divisions.
Staphelia colchica.		Cuttings.
Skimmia japonica.		Cuttings. Peat.
Olearia Hastii.		Cuttings, seed.
Viburnum (Guelder rose).		Cuttings.
Wiegelia	in variety.	Cuttings.
Veronicas	„	Cuttings.

It may be as well to glance at the more important of these in greater detail, for some of them comprise quite a number of varieties and are of considerable importance.

Azaleas

Of these we have different sections—Mollis, Ghent, Japanese, occidentalis and various hybrids. Technically classified with the rhododendrons, we think it will be a very long time before their popular and distinctive name becomes submerged into the more correct one. It is a plant which detests calcareous soils but revels in a prepared peat—that is an admixture of peat, leaf-mould and an innocuous kind of loam. We do not propagate them very extensively in this country, that being one of the things John Bull has left more or less in the hands of continentals, but we do not know of any sufficient reason for this. Cuttings taken in August and struck in sandy soil under glasses are not backward in rooting. Stock may also be raised from seeds, if sown in May, using a compost of peat and sand and covering the seeds with the sand. We have often

grafted newer varieties on seedling stocks with perfect success, but on the whole prefer propagation by means of cuttings.

It is well to get young plants established in pots at first, planting them out when quite strong into prepared quarters. They soon be-

FIG. 11.—Japanese Azalea

come well established, being very free rooting, becoming in time a mass of fibre.

Each section comprises several varieties, the colours running through various shades of red, yellow, salmon and pink. *Azalea mollis* is the best section for forcing, and is grown very largely for that purpose.

BERBERIS

The best of the berberis for our particular purposes are Aquifolia, Darwinii, Jamesoni, Stenophylla, Thunbergi. The first is better known by its common name *Mahonia aquifolia*, its bright yellow

flowers coming very early in the year from a background of deep green glossy foliage. The latter is perhaps its most valuable and attractive feature, for it puts on a bronze autumn colour which makes it highly decorative in the shrubbery and exceedingly useful to the florist. It may be propagated from divisions of the root or rather offsets or suckers, but more generally it is raised from seed sown in

FIG. 12.—Berberis (*Mahonia aquifolia*)

the usual way in the open ground; or may be purchased by the thousand at one year old. The other varieties, grown purely for their flowering excellencies, are increased by taking cuttings of half-ripened wood, with heels, in August as other hard-wooded cuttings referred to in Chapter III. For chaste beauty no other flowering shrub can surpass such varieties as Darwinii and Stenophylla, whose pretty orange-coloured flowers mass thickly the full length of the previous season's growths.

B. thunbergi deserves special notice, for it is exceedingly effective in spring with its numerous pale straw-coloured blooms suffused with red, and again in the autumn there are very few shrubs can vie with it in the colouration of its foliage. All the varieties here named are splendid market kinds.

FIG. 13.—Berberis (*Darwinii*)

BUDDLEIA

The best-known variety of this handsome shrub is *B. globosa*, the golden ball. The blooms of this, produced in trusses, are as spherical as an arbutus berry and about the same size—unique amongst flowers. To call it an interesting flower is simply banal, for it is not only so, it is highly ornamental. Nothing could be more unlike than this, and the other type, *B. variabilis* and its varieties, and seen apart from the trees and without foliage they would not be taken as members of the same family, for *B. variabilis* has large spikes of violet or lavender-coloured flowers of the size of a large spiræa, suggestive in other respects of a ceanothus. The foliage of the buddleia is lanceolate and of a dark sage-green, and when it is in bloom it has a handsome and attractive appearance. It would probably find its place among the dozen best flowering shrubs we have. Propagation is from cuttings, and it is not difficult to strike. Make the cuttings of firm wood, using the tops of the shoots, and insert in sand under lights July–August. It is a very hardy shrub, and as soon as rooted can be planted out into nursery beds.

CERASUS (THE FLOWERING CHERRY)

These take place among the almonds, prunus and other spring-flowering trees of similar character as being the glory of the spring. In all other respects like to an ordinary cherry, they have mostly double flowers, but do not bear fruit. There are numerous varieties: white, pink and red, and all are alike beautiful. Not only as stan-

dards but also as bushes they are effective and spring-like, and they make good back row plants in the shrub border. They are all propagated by budding on the mahaleb cherry stock.

Cotoneasters

The best-known cotoneasters have small box-like dense foliage of the deepest green from which gleam out like globules of fire myriads of deep red berries. For centuries this shrub has been grown and held in popular esteem, as is evidenced by the numerous old specimens up and down the country, the best of which are found covering the walls of village homes. The varieties are numerous and of varying habit, some dwarf and creeping, fitted only for rockery work, others with outspread arms and lofty head embracing the gable ends of houses and long since past the second-story windows. Among the best-known varieties are buxifolia, microphylla, horizontalis, simonsii, thymœfolia, etc. Most of the varieties seed freely enough and may be so raised, but we prefer the quicker and better way of striking the cuttings with other things in late summer. The whole of these are exceedingly hardy, are evergreen, or nearly so, and can be put to a variety of uses according to their several habits. As a winter decorative shrub it has no mean claims, for the berries often hang on them until the advance of spring clothes the various growths with thousands of white starry blooms.

Cytisus (Broom)

The varieties of the cytisus may be named " legion." We can only select a few because after all the number of what we term " market varieties " is limited. They differ widely in form and habit and that is why, as a family, it is so attractive. All, or nearly all, are exceedingly showy, and all the common yellow broom, " scoparius," is, when in bloom, a sight for the gods, giving points even to the laburnum. If the cytisus has one distinguishing characteristic more than another it is the extreme prodigality with which it produces its bloom. There are several dwarf-growing varieties very suitable for rock gardens, where they are most effective, such for instance as ardoini, kewensis, decumbens, schipkæensis, prostrata, etc., but the demand is likely to be greater for the bush and

larger growing kinds, among which are biflorus, dallemorii, præcox, scoparius andreanus, sessilifolius, versicolor, etc.

The ordinary brooms, and most of these mentioned, seed freely and are easily raised, but many prefer to increase their stock by cuttings taken in the ordinary way and struck without heat, treated

FIG. 14.—Canary Broom in pot

in fact as "hard-wooded cuttings." Sometimes, for special purposes, budding and grafting are resorted to, but this is by no means general. The R.H.S. shows in London have familiarized many of the choicer varieties to the public, for representative collections are put up there by certain specialists. These are worth a visit and a study.

CISTUS

If we were writing a descriptive catalogue we could find much to say for the gum cistus. The better-known varieties, such as cyprius and ladaniferus, have large single white flowers, blotched at the base of the petals with yellow, chocolate and crimson, not altogether

unlike tree poppies. These flowers are exceedingly attractive and the shrubs bloom over a period of a month. Cuttings are made in July–August and inserted under lights (see Ch. III); but the root system is so poorly developed that it is not safe to attempt transplanting when the shrubs have attained any size. It is customary to grow them in pots and keep them plunged in the open ground, and it is thus that they must be offered in the market.

Cydonia (Pyrus) Japonica

This is an effective and very popular wall shrub. To thousands of people it is known only by its varietal name of "japonica." It is undoubtedly "a thing of beauty" in the spring time with its masses of deep red flowers reminiscent of highly coloured apple blossom. There are other colours, including white, but its best-known form is the common one, which is common only in the sense that it *is* well known, for there is nothing else common about it. It is another of those plants which, like the cistus and pyracantha, will not readily transplant unless it is grown in pots and so can be transferred to the ground without disturbing what root there is. The pyracantha is a kind of sister plant to it, but in addition to its flowers it furnishes itself with numerous heads of orange-scarlet berries which make it beyond doubt the finest wall bush we possess for winter decoration. Lelandi is the best variety. They are easily raised from seed.

CHAPTER VIII

FLOWERING SHRUBS—(*Continued*)

Daphne

Of this, the earliest flowering and sweetest shrub in England, there are but few varieties which need concern us. It is not a conspicuous plant at any time, but, like the violet, betrays its presence by the sweetness of its perfume. Its classic name is evidence of the esteem in which it was held long years ago, and we think it was never more esteemed than it is at present. Mezereum, in its pink and white forms, is the one familiar to most people and is probably the best of the hardy varieties, though "ponticum," useful as a shrub, is also well known.

The daphne was known as far back as the days of "Good Queen Bess," and has always been cherished by cottagers and in what we call old English gardens. We believe it to be a native, though that point is questioned. Its numerous flowers are followed by berries, some varieties red, some yellow; but these berries, while they form an autumn attraction, are gathered and sown as seed as soon as they are ripe, for it has the peculiarity of taking two years to germinate if the berries are allowed to dry in the way most seed-berries are.

Fig. 15.—Spray of Daphne Mezereum

Deutzia

We need glance only at three varieties, viz. *gracilis*, *lemoinei* and *crenata flore plena*. The first is the most valuable of the dwarf-growing varieties and is grown by thousands for forcing purposes, its pure white racemes of bloom, produced in great abundance, making it one of the best of plants for indoor decoration in early spring.

When grown in the shrubbery it may attain a height of 3 feet to 4 feet, but this is unusual, 2 feet being more usually its height, because to get the best from it it should be pruned every year immediately after blooming to induce strong young growths for flowering the following year. This variety can be struck from young

FIG. 16.—*Deutzia gracilis*

growths produced on the forced plants and inserted in sandy soil as early as March in heat, and at two years old make splendid forcing plants; or from outdoor plants they may be taken in June and July and struck under glass, in which case they take three years to attain forcing size. *Lemoinei*, a much larger growing variety, is also largely used for forcing and may be propagated the same way, but *crenata flore plena* is a border shrub, as beautiful as any, and attains the height

of 6 feet to 7 feet. The deutzia is closely allied to the philadelphus or mock orange, which is also a good market flowering shrub, needing much the same treatment as the deutzia.

Forsythia

This early flowering shrub is commonly known as " Golden Bell." Its more popular forms are *suspensa* and *viridissima*. The latter blooms just ahead of the former and both before their foliage appears. *Suspensa* has long trailing branches and is best grown on a wall, its pendulous golden flowers being produced along the whole length of the trails and are very effective. *Viridissima*, a more compact and upright variety, blooming in March, has equally golden bells, which because of the compact growth are even more effective.

This is one of the easiest shrubs to propagate. Cuttings of half-ripened wood, cut at every second joint, are made in July–August and inserted under hand-lights and given the ordinary treatment.

Garrya

Garrya elliptica is the best of these, the only one worth our noting. It is a stout evergreen and hails from California, so that no surprise need be felt when we say that it is not so hardy as we could wish it to be. It is probably safe anywhere in the southern half of our island except in very exposed positions, and where there is any doubt the unique beauty of the shrub would justify its planting against a warm wall. It blooms in the winter, bearing tufts of pale green catkins which gracefully hang and are of unusual length, lasting for some weeks. It is prized as a cut decoration for vases when such subjects are not over plentiful. Male and female forms exist separately, the former being the pollen bearer and the more handsome. It is more difficult than most shrubs to propagate, and a considerable percentage of cuttings may fail to strike when treated as other shrub cuttings. We have found them easier to strike if put in earlier rather than later—July instead of August.

Hydrangea

There are two shrubby hydrangeas well worth the growing and those are *H. paniculata grandiflora* and *H. arborescens grandiflora*.

Both bloom late, bearing huge panicles of white and creamy-white flowers. The latter, being a more recent introduction, has yet to make its way, but those who grow it are much impressed in its favour. *Paniculata* has been grown for many years, though well within the recollection of the writer. It is consequently better known and more asked for. Strangely enough, though it blooms so late in

FIG. 17.—*Garrya elliptica*

the year as August it is a good subject for forcing when established in pots. *H. hortensis* is by far the best-known type, and there are many very fine varieties, mostly of French origin, which are in great demand for forcing. We have been often asked for blue hydrangeas, but we have yet to learn of a really reliable hydrangea of that hue, or that by anything but special treatment this desirable colour can be obtained.

The *hortensis* type have large trusses of large blooms varying from white to pink and is met with everywhere. We have seen most imposing displays where they have been grouped together in suitable surroundings, but mostly they are grown solus, either in tubs or in some conspicuous spot in the garden. There is no better decorative subject among all our hardy shrubs nor one which carries its flowers through so long a period. Practically it lasts right through the summer and until the cold autumnal nights and mornings brings its course to an end. As a matter of fact the market man must know that in one form or another it can be had in bloom eight or nine months in the year, from the early forced pot plants in March until late in October. This proves it to be a most useful and valuable subject to the trade.

The propagation is by cuttings, the tops of the current year's wood being most suitable. Our own method is to strike them singly, in small pots, taking the cuttings about the end of August and standing them in a close cold frame, keeping them sprinkled and well shaded.

Magnolia (Early Flowering)

Eastern Asia has poured many treasures into our nurseries, but nothing much more imposing or chastely beautiful than the early flowering magnolias, with their large wax-like chalices of white and tinted shade.

There are several varieties and numerous hybrids with no startling divergence between them, but all alike beautiful. " Kobus " in its native habitat, Japan, grows into an exceedingly large tree 70 to 100 feet in height and not much less in its spread of branches. To see such a tree in bloom, with thousands of glittering white cups about 4 inches across, must be worth seeing, for we can scarcely imagine what it is like. The variety is well known in our nurseries and gardens. The variety " Conspicua " has equally large blooms, " Campbelli " perhaps larger, its beauty enhanced by the crimson reverse of its petals. " Stellata " is one of the very best, a profuse bloomer and delicately scented. Most of these are the better for the protection of evergreen trees as they bloom early and the frost quickly injures their delicate petals. Propagation may be by seeds, especially of species, but that of varieties by layers or by grafting on to stocks

of their own species. Layering is the most expeditious and generally the method mostly adopted.

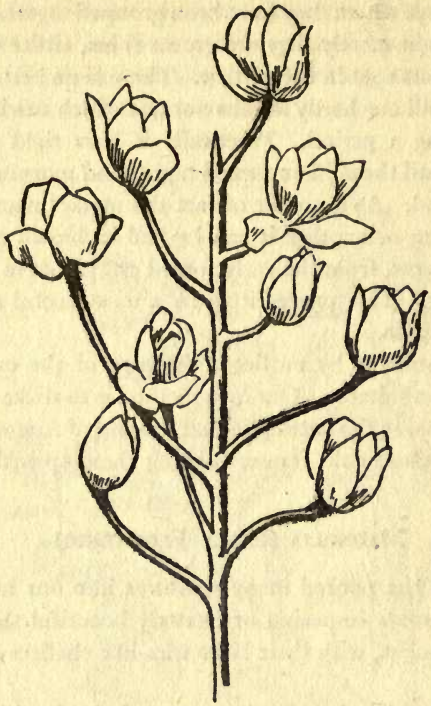

FIG. 18.—*Magnolia campbelli*

LAURESTINUS

This, as is well known, is an evergreen, early flowering shrub, bearing masses of white flower quite early in the year. It is " everybody's " shrub, and is in great demand not only as a subject for the border but also as a plant for the winter window-box. Some thousands are used for the latter purpose every year, and as it is such a ready seller the nurseryman will naturally see to it that his stock of young healthy stuff is every year replenished. It is, fortunately, one of those easy plants to propagate, and nearly cent per cent of the cuttings put in may be depended upon to root. Though it may be made to strike at almost any time of the year, the regular

propagating time, July and August, is undoubtedly the best, there being at that time an abundant supply of half-ripe wood hardened by the sun. There is a disadavantage in making the cuttings too large, and we find that 3 inches in length is the most successful, as they have to negotiate two months' hot weather, very trying to large cuttings.

PRUNUS

Beside *Prunus Pissardi*, which we have already dealt with under standard trees, there are other varieties of considerable merit as spring-flowering trees. *P. triloba* stands almost by itself among them as being in every way desirable. "Sinensis" and its varieties, double white and double rose, are also well known. "Spinosa purpurea" has foliage as dark as *Pissardi*, with small pink multitudinous flowers on a close and compact growth. Then, too, there are varieties of the "Pissardi" type, with its dark foliage but double flowers. Of these are *Blirieana fl. pl.* peach-pink and semi-double and *Moseri fl. pl.* pink semi-double. All the *prunus* may be propagated by budding in the same way as *P. Pissardi*, which see.

FIG. 19
Prunus blirieana

PYRUS

Pyrus malus floribundus is a typical spring flowering shrub or tree which is nothing less than exquisite. There are several of the "malus" type, single and double, every one of which is equally praiseworthy. They include the ornamental crabs, and though usually grown as standards they are very effective as shrubs, especially when grown in solus posi-

FIG. 20
Pyrus malus

tions. Some are white, some are pink, others rose, and one at least is carmine. Nurserymen when budding their apples should find stocks to spare for a few of each of these, as they are and will be more and more in request.

Rhododendrons

When writing of the rhododendron we feel there is so much to be said that it should be given a chapter to itself, but we remember there is no reason why we should deal with it in too much detail. It is, admittedly, the most popular and admired of all our hardy flowering shrubs, mainly because of its blooms, but something also for its fine foliage. The various species, coming to us as they do from all over the world, do not appeal to us as potential market plants, so we can leave them out of our consideration, while we turn to those magnificent hybrids obtained from crossing such species as *R. arboreum*, *R. catawbiense*, *R. caucasicum*, *R. fortunei*, *R. ponticum* and others. These, far more than anything else, have made the rhododendron what it is and compelled the admiration of all lovers of the garden. We cannot find the same wealth in any of the types, no such rich colouring and delicate pencilling of the petals, no flowers so large, no trusses so huge as in Pink Pearl, White Pearl, Duke of York, Mrs. E. C. Stirling, Lady C. Mitford and others.

Sources of Supply

Even though our provincial towns are used as dumps by the Dutch growers of the rhododendron, sensible people know that the better varieties (no matter what labels may be attached to them) cannot be procured from such a source, and years of disappointment will in due course tend to discourage such importations. We, on our part, must be very careful to supply sterling varieties true to name, and though we cannot compete with the prices of the auction yards we can make our appeal to those who know "what's what," who hold their gardens in greater regard than to fill them with rubbish.

Yet most of us must depend upon the Dutch grower for our young stock, but we are discriminating enough to know that the reputable and reliable houses have no occasion to dump stuff either here or

anywhere else. We send to them for our young stock simply because they specialize in rhododendrons and we do not. The general lie of their land, the nature and dampness of their soil are better suited to this shrub, and they lay themselves out to exploit these advantages by raising young stock by the thousands. There are very few firms in this country who are able to compete with them, though we well remember how Noble, the grand old man of Bagshot, used to do them, and also a few other houses in the same district where the soil and the climate helped.

One thing which tends to keep up the demand for plants is the fact that so many people plant the rhododendron in impossible places, in impossible soil, and expect them to flourish, only to find that they have to be replaced after a very short innings. A soil containing no lime is absolutely essential if they are to grow, and a good, sweet, warm sandy peat is perhaps the best medium. This can easily be supplied to them when planted, for they make such a small spread of root that a peck or two of this compost would last a lifetime.

As suggested above, we do not propagate many plants in this country except in remarkably few nurseries. They are propagated from cuttings and layers, and are also grafted on stocks of the " catawbiense " type. Personally we prefer to adopt the method of layering, and this we find answers our purpose. Each shoot, conveniently placed, is used, so that it may start on a single stem with a single crown. Cuttings can be struck in sifted peat and sand, or even in pure sand, if made with a heel and placed under glass.

CHAPTER IX

FLOWERING SHRUBS—(*Continued*)

Ribes (Flowering Currant)

This old and familiar shrub maintains the popularity it has achieved during the past century. It will remain popular for many years to come because in its season it is without rivals. Flowering so early in the spring there is nothing like it for a warm-glowing effect, produced while most other deciduous shrubs are only just awaking to

Fig. 21.—*Ribes sanguinea*

life. No need is there for us to dilate upon its usefulness or its effectiveness, for these are too well known, and it is because it is so well known that we look upon it as a good market line to grow. Its propagation is of the simplest and is identical with that of its near relative, the red currant. Cuttings are taken in the autumn of strong and well-ripened wood from 9 inches to 12 inches in length and inserted in the open ground. In order to make a stem the lower eyes are removed, plants with a stem being more shapely and saleable than "stools." Transplanted at one year, they are pruned back each autumn so as to make good heads and become fine bushy shrubs at three years old and fit for any market. The best varieties are the "sanguineum" type, the red colour intensifying in this order: *sanguineum*, *atrosanguineum* and *sanguineum splendens*. There are others, the so-called white, the blush and the yellow, but these are not in equal demand. All are noted for the autumnal foliage tints and are worth growing for that alone.

Spiræa

This is a numerous family and a very handsome family too. If we were asked to name the best half-dozen we should find some difficulty in making the selection, for they differ so much in form, in habit and season of flowering. There are dwarfs and there are giants among them. Among the best of the dwarfer varieties are Anthony Waterer, Rosea superba, Thunbergi, etc.; of a medium growth are Salicifolia, Van Houtei, Arguta and Trilobata, while among the larger growing are Lindleyana, Douglassi, Aræifolia and Menziezi triumphans. But these are not one quarter of the really commendable varieties, with colours ranging from pure white through cream and pink and rose to crimson, some being feathery, others being stellate. Growers of cut bloom for market do not hesitate to grow them for that purpose, and such is their beauty, in almost any of its forms, that they are very acceptable as such. Van Houtei and some others are valued as good subjects for forcing, and no casual observer, struck by its tiny myriads of white starry flowers, would deem that it belonged to the same class as the lordly Lindleyana, which differs so widely from it in every respect. Many of the spiræas form clumps and are easily divided; many, too, throw

numerous suckers which are taken to increase the stock, and some are propagated in the ordinary way from cuttings.

Syringa (Lilac)

The lilac is one of the most typical of our English early-summer flowering trees, one which, on the face of it, remains very much as it was in the days of our grandfathers three-quarters of a century ago, when there were white lilacs and mauve lilacs, and no others. But that is only seemingly so, for in reality there is a very great difference to-day, and it is not unusual to see from eighty to one hundred varieties listed in catalogues. This, of course, is unknown to the man in the street, and his indifference to it equals his ignorance; but if he is the fortunate possessor of a garden he will see to it that the lilac is represented in it somewhere or other, if it be possible. We are expected to pay more regard than he to the long list of varieties catalogued, but even for our purpose we can afford to ignore a great proportion of them. At the least, we want something more than the old common lilac, both in coloured and in white. And these we can easily select, in kinds just as hardy, just as profuse, just as deliciously scented, with much more massive trusses. Do we want giant whites? We have them in Marie Legraye, Alba grandiflora and Bertha Damman. In lilac? We have Charles X, Léon Gambetta and Louis Van Houtte. In deeper tints? There are Louis Spathe, King Albert, Gloire de Lorraine, etc. And these without touching their counterparts in the double form.

Gradually these more handsome forms are finding their way about the country, and we may see the new and the old, cheek by jowl, almost unnoticed by the passer by. It should be our business to let the old common varieties go by, while we do our best to distribute only the improved varieties, for, after all, that is a duty we owe to our calling.

The Persian lilacs (*persica*), both white and lilac, are more often met with than of yore, but they do not form the same dense bushes as the others or give such a massive effect. They are lighter, looser and smaller, but perhaps they make up in elegance what they lack in massivity.

Now that the forcing of lilacs for cutting has reached such large dimensions, we ought perhaps to allow ourselves a brief reference to it. Forcing is best begun with the year, little being gained by an earlier beginning. First, the plants should be subjected only to a moderate temperature until they have become healthily active, at which stage they may go into the forcing house with a temperature of 70° to 80°. When the truss expands and the flowers are about to open, they will come a better colour and last longer if they are removed to a house of 60°, this slight hardening being all-round beneficial. The following are good forcing varieties :—Singles : Charles X, lilac ; Marie Legraye, white ; S. de Louis Spathe, purple ; C. B. Van Nez, blue. Doubles : Mad. C. Perier and Mad. Lemoine, white ; Michael Buchner, purple ; Pres. Grèvy, blue.

Viburnum (Guelder Rose)

Of all the Viburnums, and there are many, we have only to do with the single and double forms of the variety " opulus," commonly known as the " guelder rose," or " the snowball." Some of the others are very pretty and carry handsome bunches of berries after blooming ; also, the greater part are admired for their autumn colours ; but it is " the snowball " which is the really marketable plant, simply because it is best known.

The bloom of *V. opulus* is really very remarkable, for it resembles a miniature close-packed spherical hydrangea. Coming sometimes the size of a cricket ball, each truss is comprised of hundreds of florets, which make a white fluffy ball. In the garden, planted by itself, or with others in the shrubbery, it is very striking about the time of Whitsun. Grown in pots and forced, it may be had in abundance for Easter, and a great many are grown for this special purpose. The double form, *V. opulus sterile*, is exceedingly handsome, and its flowers, when forced or even in the open, have all the pure whiteness of snow. Cuttings may be taken from forced plants in April and struck as greenhouse subjects, in heat ; or, as is more usual, they are taken with other hard-wooded cuttings in July and August and treated with them, as explained in Chapter III.

Veronica

Most of the veronicas are only half hardy and so must be grown in pots ; but there are a few that are perfectly hardy and are numbered among the best of our flowering shrubs. The best known and most useful of these is *V. traversi*, a variety with small leaves which develops into a shapely circular bush about 2 to 3 feet high and as many feet through, and which in its season is covered with small spikes of pale lavender flowers. This variety sells in large quantities in the autumn for planting in window boxes. Among the half-hardy kinds we consider that the silver variegated veronica is the most valuable as a decorative plant. Its variegation is well defined, and quite apart from its long spikes of bloom it is so ornamental that it is used as a table plant or as a regular greenhouse plant. " Purple Queen " is a similar variety minus the variegation. " Hulkeana " has delicate lavender spikes, and there are others with white and pink and rose. Others there are which are miniature in form and best grown in rockeries ; while again, beyond these, are the herbaceous varieties with which we now have no concern. All the shrubby veronicas are easily struck from cuttings, which may be put in at almost any time, provided the wood is firm. We have struck them indoors early in the year, but mostly we make our largest batches of cuttings in August and insert them under the box-lights.

Wiegelia

This is a family of summer flowering shrubs, of which not less than forty varieties are in commerce. It is not extensively planted except where shrub borders are a feature, not nearly so extensively as its merits would justify. *W. rosea* is the best known and is more often met with than any of the others. To many it is known as the summer apple blossom, a name which only partly describes its trumpet-shaped blooms. We have seen this variety in bloom from late June till October, and that is something in its favour.

Several of the varieties are looked upon favourably as amenable to forcing, and the variety " Edith Rathke " is the best of these. Its flowers are large, more trumpet-shaped than *rosea*, and are of a brilliant crimson. A well-grown plant in full bloom is a reve-

lation. There is no great diversity of colour, and as a whole the class is not showy, but there are good whites and pinks and rose and crimson. They are propagated from cuttings made and inserted in the ordinary way about August, the earlier in the month the better.

CHAPTER X

CONIFERS

AMONG ornamental trees and shrubs, the conifers must be awarded a leading place. Being practically all evergreen, they have a great advantage over deciduous trees and shrubs in that their decorative effects are permanent. This in itself is much, but is not everything, for there are many keen gardeners who prefer the changing effects—the spring, summer and autumn—of the deciduous flowering shrubs; yet even they will willingly admit that the best and most complete effects are obtained from a combination of both.

But permanency of effect is not the only recommendation of the conifer when the right thing is planted in the right place. Its perfect form, its trim beauty, its elegant growths, its massive yet light appearance, its majestic and stately proportions as it develops, stamp it at once as the aristocrat of the garden and the pride of the greensward.

There are so many conifers extant that we must not attempt to give an exhaustive list, and can only concern ourselves chiefly with species, and secondarily with a few of the more prominent varieties, altogether omitting such varieties as the Cedar of Lebanon, the lordly Sequoia or Wellingtonia, and the spreading Picea Nordmanniana, etc., as being scarcely market trees in our particular sense.

Nurserymen who may have none but a shallow dry soil will be well advised to have little to do with coniferæ beyond that stage at which they can be sold for window-box adornment, for though the Scotch fir and other pines (forest and not ornamental trees) will thrive on shallow stony soils, the really ornamental conifers we have in mind need something better, failing which they shed their lower foliage and are no longer ornamental. Abies, cupressus, thujas, yews and others all have a considerable root system and should be planted in soil which has at least a medium depth.

The demand for young conifers from 2 feet to 4 feet in height is really very great, and there is every probability of its becoming even greater. Their cultivation up to that size is by no means

difficult, most of them being raised from seeds, some from cuttings, some by either method, while some few must be grafted. In suggesting the methods of propagation it may prevent repetition if we here say that when we say " from seeds " we mean that seeds should be sown in pans in May or June and raised in cold frames ; when we say " by cuttings " we refer to the methods explained in Chapter III ; and when we say " by grafts " we mean according to the details recorded in the chapter on " grafting."

Abies (Spruce)

This species of fir contains varieties ranging from the dwarf " pygmea " to the lofty-growing " Douglassi," one of the tallest of our forest trees, which is largely planted partly because it is a very

Fig. 22.—*Abies kostert* (the Blue Spruce)

ornamental tree and is, beside, the most aromatic of all the conifers and will thrive on light soils. The common Christmas tree (*A. excelsa*) is included in this family and is only a market tree because

of its special seasonable use, which, we regret, is rapidly decreasing. The two most handsome abies we have are " Glauca " and " Kosteri," or the blue spruce, the latter being a more intense blue than the former. The variety " Clanbrassiliense " is, like " pygmea," a dwarf, both of which are suitable for planting in a rockery. There is also a blue form of Douglassi with glaucous blue foliage, and this makes a very effective tree. " Canadensis," " Menziesii " and " Parryana " are well known. The two dwarf varieties are propagated from cuttings, most of the others either from seeds or from cuttings.

Araucaria

Araucaria imbricata (the monkey puzzle) is familiar to most people, but a good specimen is the exception. As it grows it sheds its foliage and its lower branches, more often than not because it is planted in uncongenial soil or in a cold exposed position. Still it remains a favourite, and the market nurseryman will do well to raise a few every year from seed.

Cedrus

There are two cedars we can include in our category, and those are *C. atlantica* and *C. deodara*. The latter especially is held in high esteem, its graceful drooping habit and symmetrical growth making it a general favourite. " Atlantica " is an equally effective cedar and is particularly hardy, and there is a glaucous form of it which carries silvery-grey foliage. There is a lightness and elegance about this very different to the " Libanus " type, and on lawns and elsewhere, where ample space is afforded, they are among the most handsome and ornamental of all trees. Grown from seed.

Cupressus Lawsoniana (Cypress)

There are a goodly number of varieties of this (*see* frontispiece), perhaps the largest, section of purely ornamental conifers. The type itself is known to all, and if one was seeking a beautiful and useful conifer there would be little need to seek further for it. It is probably the best seller of the whole bunch, because it is a quick and symmetrical grower and is a by no means expensive bush. Raised easily from seeds.

C. allumi is of an erect pyramidal growth, bluish in appearance and very effective. This, though less well known, is a good seller. Raised from cuttings.

Erecta viridis is almost a type and has several forms. It grows close and upright, of a pyramidal form, and is best during the first twenty years of its existence. Possibly it might be considered stiff, its rigidness suggesting that of a sentry on duty. It has a clear golden form named " Lutea," another " Stewartii," a silvery, more spreading form, " Silver Queen," a glaucous form, " Triomphe de Boskoop," a slender, fine-foliaged form " Gracilis " and several others. Several of these are most quickly obtained by grafting on the type, the green varieties generally being raised from cuttings. Then we have the very beautiful *Cupressus macrocarpa*, one of the finest and best, well known throughout the southern counties where it is grown as specimens and also as hedges. It transplants badly, hence it is necessary to grow it in pots. It also has a golden form, *Macrocarpa lutea*, and this is propagated best by grafts. The type is easily grown from seeds. The whole of these mentioned may be regarded as suitable lines and readily saleable up to say 3 feet high, after which they become too expensive for market buyers.

FIG. 23.—*Juniperus chinensis*

JUNIPERUS

The Chinese (*Juniperus sinensis*) and *J. hibernica*, the Irish juniper, are popular useful kinds, but our experience is that most of the family sell best at a young age as suitable subjects for window-boxes. There are some really beautiful varieties, but they are more for private collections than for ordinary use and are not to be found on the market. Seed and cuttings.

Picea

This family embraces the great pines such as Scotch, Weymouth, Austrian, etc. *P. nordmanniana* we have already referred to as a very handsome and massive tree, but not fit for market cultivation. *P. nobilis* is one of the grandest of all the pines, and this too is heavy. Young pieces of *P. pinsapo*, resembling more closely the abies, and very dense in growth, make magnificent specimens when fully grown, and we have seen some wonderful examples in various parts of England. Most of the piceas can be raised from seed.

Retinospora

A well-known and popular family in about half a dozen acceptable varieties, of which " plumosa " is more plentifully grown than any other. Its plumose foliage is particularly attractive and lacks the stern outline of many conifers. It certainly makes a fine plant for boxes, and is by no means inelegant when grown in pots. It is easily raised from cuttings. A golden form, *R. plumosa aurea*, is in all respects similar except in colour, which is an attraction when grown among green shrubs, but not so much when grown solitary. *R. filifera* has long thread-like growths as its name implies, and is distinct and interesting. *R. pisifera* somewhat resembles plumosa, but the foliage is not so feathery and the growth is a little less spreading. It and its golden variety are very hardy and make good specimens. *R. squarrosa* is very distinct, but perhaps best when small. All the Retinosporas are worth the market man's close attention. Cuttings strike readily.

Taxus (Yew)

The yew will always be a popular tree in England, for though we do not depend upon it for defensive weapons, as our forefathers did, it has long been woven into our nature. The common yew is raised from seeds; the golden yew, *T. baccata aurea* and *Aurea elegantissima*, are grafted on to the common stock and make exceedingly ornamental shrubs of considerable value, yet always in demand. The Irish or Florence Court yew, with its peculiar attenuated

upright growth, so different to the spreading English type, is also well known, and this too has a golden counterpart which also has to be grafted. There are probably a couple of dozen varieties of yews in commerce, but the above two types are far better known and more widely planted than the whole of the others.

Thuja (Arbor Vitæ)

We have already made reference to *T. lobbi* as being our favourite hedge plant, and now we are to consider it as an ornamental shrub. Equal in every respect and of similar habit to *Cupressus lawsoniana*, it excels even that splendid plant in several ways. Its foliage is more ample, its growth is, possibly, more rapid, and, on the whole, it is a better doer. From the wide spread of its feathered branches which sweep the ground right up to its thread-like slender head, a well-grown specimen is all a conifer should be, symmetrical, dense, majestic. That is *T. lobbi*. There are many varieties but none like this. The American Arbor Vitæ (*T. occidentalis*), a very hardy shrub, is not, in our estimation, nearly as good, though this too forms a good hedge when planted for that purpose. *T. aurea* and *T. elegantissima* are golden forms much more approximating in form to that of cupressus *L. erecta viridis*, except that they do not so run up to a point; but both these forms have to be grafted on the lobbi, for we have never satisfactorily dealt with them as cuttings. *T. vervæneana* is of more slender growth and has proved itself good in its place, and *T. gigantea*, *semperaurescens*, in a collection is very desirable, but beyond these all the other varieties belong more to the general nursery than to that which specializes in market work. Except the golden varieties, propagation is by cuttings, but the types lobbi and occidentalis can be raised from seed in the usual way.

Thujaopsis

There are only two thujaopsis worthy of note here, and they are so exactly the opposite the one to the other that no one who did not know them would deem them related: they are *T. borealis* and *T. dolobrata*. The latter is more like a woody lycopod or a prehistoric forest plant compared with most other conifers. It seldom makes a good specimen, though we have seen such when grown under

favourable conditions. It is, however, one of those shrubs which, up to a certain age and size, are genuinely ornamental; and this particular variety is so distinct and outstanding that it must always be given its place in a collection. It is, with the above reservation, a very suitable garden plant and one not likely to outgrow the space allotted to it. Propagated from cuttings.

T. borealis very closely resembles *Cupressus lawsoniana*, but is much darker in colour. It makes a handsome pyramid, and we have seen magnificent specimens in parks and grounds. The ordinary market nurseryman would probably give the preference to the better-known cupressus, but he would still do well to include a few of these thujaopsis in his collection.

CHAPTER XI

WINDOW-BOX EVERGREENS

QUITE a large number of the shrubs dealt with in the foregoing pages are suitable subjects for planting in window-boxes, and also in flower-beds, for winter decoration. A judicious mixture of evergreen and variegated shrubs with small conifers and trailing ivies is pretty and effective, giving an effect of freshness and variety almost as pleasing as flowers themselves. The trade done in such plants is already extensive, but it is a department which seems to ask for extension, only needing a little more encouragement to double itself. Many window-boxes are practically bare throughout the winter, being filled with bulbs, which after all give only two or three week's display in the spring; but we feel sure that if their owners had it brought home to them that they could have a standing effect from shrubs, and still obtain the spring effect by planting their bulbs between the shrubs, they would gladly avail themselves of the information. We have often noted the intermixture of wallflowers with bulbs, and though this is perfectly legitimate and by no means unlovely we consider bulbs and evergreens to be the better. The cultivation of this smaller stock appeals more strongly to the market man than the production of half-specimens, if for no other reason than because it is quicker, and it has always seemed to us that "market" and "quick trade" go well together.

We give here a list of shrubs and conifers in general use for this purpose, though it might be greatly extended by the addition of almost any evergreen of suitable size.

EVERGREENS

Aucuba japonica. Berberis (*Mahonia*) aquifolia.
Bay (*Laurus nobilis*). Box (*Buxus*).
Euonymus, green and golden. Euonymus radicans. Laurestinus.
Rhododendrons. Veronica traversii.
Ivy, green and variegated. Veronica, green and variegated.

Conifers

Cupressus Lawsoniana. C. L. erecta viridis. C. macrocarpa.
Juniperus Chinensis. Juniperus, Swedish.
Retinospora plumosus and p. aurea. R. pisifera and p. aurea.
Thuja Lobbi. T. aurea. T. elegantissima.
Taxus (yew), common. T. baccata aurea. T. hibernica.

Hardy Climbers

It would be a serious omission if this volume closed without a reference to hardy climbers. The demand for these on almost any market is already very great, and in looking back over a long vista of years we have formed the deliberate opinion that they are appreciated to-day more than ever they were.

The erection of rustic arches and pergolas was never so general as now, a great advance being made since the advent of so many glorious rambler roses compelled all garden lovers to provide accommodation for them. The modern taste will not tolerate blank and ugly walls or spaces, but hastens to clothe them with some of the beautiful forms of climbing plants of which there are nowadays a plentiful supply to select from.

For arches and pergolas rambler roses are first favourites, and these we dealt fully with in Volume III of this series. The clematis is a good second, and we need add nothing to what we said about them on page 21. The honeysuckle (*Lonicera*) is to be had in various forms: "Aurea reticulata," the small-leaved golden variegated variety, the evergreen " Sempervirens," " Early and late Dutch," " Halleana " and other sweetly scented and popular kinds, all grown from cuttings. Associated with these we have the fragrant jasmines. "Officinale grandiflorum" is the best white, "Revolutum" is the best yellow, while one of the best known is the yellow winter-flowering " Nudiflorum." These, too, are all grown from cuttings.

Chimonanthes Fragrans

Chimonanthes fragrans is not a rampant grower but is excellent on low walls or on arbours. It produces very fragrant yellow flowers in winter. Cuttings.

Polyganum Baldschuanicum

Polyganum baldschuanicum is getting better known, and for covering a large arch there is nothing quite equal to it. Its blush-white flowers are abundantly produced throughout the summer and it outgrows almost every other climber. Associated with other climbers it will smother them, so is best given an arch or a trellis to itself. Cuttings of this in the open ground in autumn strike readily.

Solanum Jasminoides

Solanum jasminoides grows nearly as fast as the foregoing but is not as hardy. On the south coast it makes a splendid show, but should not figure as a hardy climber in any but the southern counties. Cuttings.

Pyrus and Pyracanthas have been dealt with on page 40, which see.

Bignonia Radicans

Bignonia radicans forms a beautiful climber for a veranda and is a splendid associate with the wistarias. Its bunches of orange-scarlet trumpet flowers are exceedingly handsome and are in every way (to use the vernacular) "classy." It is grown from cuttings, best inserted in pots in August, and stood in a frame.

Wistarias

Undoubtedly the most beautiful of all climbers. A large plant of this, well established and healthy, produces an effect quite indescribable. It is very hardy, but it only does its best when it is afforded ample space and generous treatment. The best known, because the oldest, variety is "Sinensis," which produces long racemes of purplish-lilac flowers in early summer. "Multijuga," a newer introduction, has much longer racemes of similar colour, and "Sinensis alba," very lovely, is the white form of the first named. Root grafts.

Passiflora

This is old and as popular as it is old, a never-ending source of interest to the man in the street. The extremely curious and suggestive form of its bloom and the traditions attached to it are the causes of its popularity, apart from which it has the merit of being a particularly rapid grower, though perhaps not too hardy. The

old form " Cœrulea," with its bluish flower, is the commoner, but the white form " Constance Elliot " is the prettier. Cuttings.

Vitis

" Coignetiæ," " Purpurea " and " Thunbergi " are the best of these vines, their beauty being entirely in their large handsome foliage, and more particularly in their autumn colouration. They need plenty of space in which to develop their full effects. In like manner the Virginian creeper (*Ampelopsis*) have the same merits except that the foliage is much smaller in such varieties as " Veitchi," " Henryi " and " Lowi." These are all self-clinging, which is a great recommendation, and they have thereby established themselves in preference to the lobe-leaved *A. hederacea*. Cuttings.

Fig. 24.—*Ampelopsis lowii*

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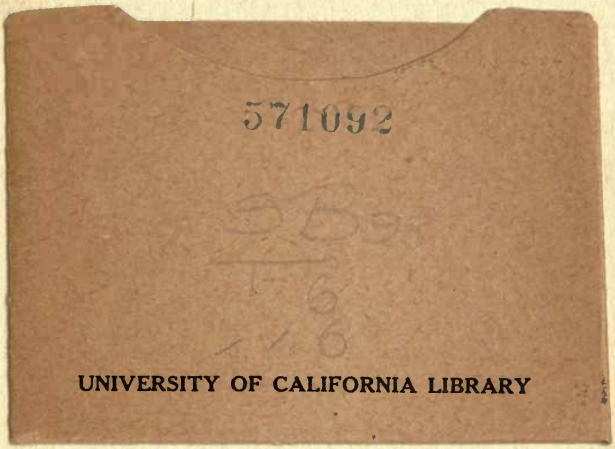
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